

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
25 March 2004 (25.03.2004)

PCT

(10) International Publication Number
WO 2004/024283 A2

- (51) International Patent Classification⁷: **B01D**
- (21) International Application Number:
PCT/US2003/028759
- (22) International Filing Date:
12 September 2003 (12.09.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/410,617 13 September 2002 (13.09.2002) US
- (71) Applicant (for all designated States except US): VALEN-
TIS, INC. [US/US]; 863A Mitten Road, Burlingame, CA
94010 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): AU-YEUNG, Jackie
[US/US]; 2564 San Jose Avenue, San Francisco, CA 94112
(US). BUSSEY, Lee, B. [US/US]; 1561 Ascension Drive,
San Mateo, CA 94402 (US).
- (74) Agent: HUSTON, Marilyn, M.; Wong Cabello Lutsch
Rutherford & Bruculeri, LLP, Suite 600, 20333 SH 249,
Houston, TX 77070 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SD,
SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,
US, UZ, VC, VN, YU, ZA, ZM, ZW.

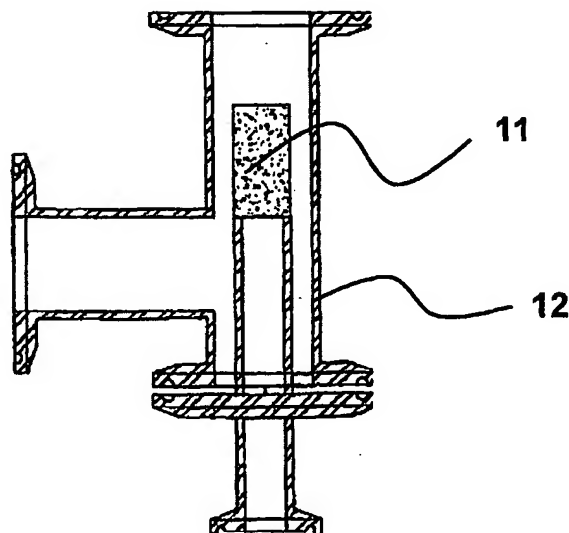
(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS AND METHOD FOR PREPARATIVE SCALE PURIFICATION OF NUCLEIC ACIDS



(57) **Abstract:** Apparatus and methods are described for pharmaceutical grade manufacture extrachromosomal nucleic acids from cell lysates using flotation to separate and eliminate undesired insoluble cellular debris including chromosomal DNA from the lysates. A gas is introduced to controllably generate bubbles that reduce the density of the cell debris and create a buoyant flocculent phase that can be readily separated from, and thus provide, a substantially clarified fluid lysate phase that is enriched in extrachromosomal DNA but substantially depleted of cellular proteins and chromosomal DNA.